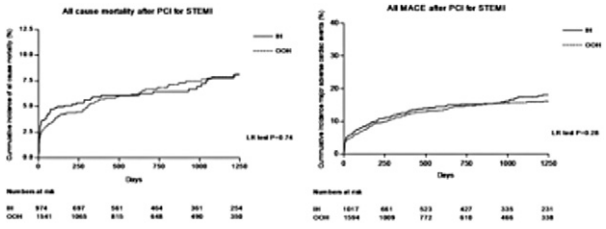
Methods: This was an observational study of 3041 STEMI patients treated with PPCI between 2004 and 2011 at a single centre with follow-up for a median of 3.0 years (IQR range: 1.2-4.6 years). The primary end-point was long-term all cause mortality and major adverse cardiac events (MACE).
Results: There were 1044 (%) patients who underwent PPCI during 'In-hours'' (IHs) compared to 1649 (%) patients 'out-of-hours' (OFHs). Baseline characteristics were similar between the two groups. Over the follow-up there were significant differences in rates of mortality (IHs 7.4% vs. OFHs 7.2%, p=0.442) or MACE (IHs 15.4% vs. OFHs 14.1%, p=0.192 - Figure 1) between the two groups. In addition, there were no significant differences in door-to-balloon times between the two groups (IHs 67.8mins vs 69.6mins, p=0.709). After adjustment for confounding variables using multivariate analysis, OFHs PPCI was not an independent predictor of mortality (HR 1.04 95% CI: 0.78-1.39). In addition, door-to-balloon time was not an independent predictor of mortality (HR 1.43 95% CI: 0.94-2.16).



Conclusions: Patients undergoing PPCI during 'out-of-hours' have similar outcomes to patients undergoing PPCI during 'In-hours'. In addition, we did not find any significant delay in door-to-balloon times in the 'out-of-hours' group. This data adds to the growing literature suggesting 'out-of-hours' PPCI is safe.

TCT-507

Left bundle branch block activations for primary percutaneous coronary intervention: non-specific finding or a marker for increased mortality?

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Background: The activation criteria for primary percutaneous coronary intervention (PPCI) includes chest pain in association with either ST-segment elevation (STE) or new-onset left bundle branch block (LBBB) on the ECG. However, defining LBBB as new is challenging acutely and the poor specificity of indeterminate chronicity LBBB may result in unnecessary PPCI activations. Published data are conflicting with regard to the utility of LBBB as a triage criterion for PPCI and the subsequent outcomes are undefined.
Methods: Consecutive patients attending a single UK tertiary centre for presumed PPCI between September 2008 and December 2011 were included (n=2192). The activation ECG was obtained from the hospital PPCI database, as were demographic data. Outcome data were obtained from notes and national databases. MACE was defined as a composite of mortality and unplanned revascularisation. Two interventionists blinded to patient outcome reviewed the angiographic images and adjudicated if the activation was appropriate.
Results: Chest pain with LBBB (LBBB-activation) occurred in 120 patients (5.5%) of the overall PPCI cohort. Comparing LBBB-activations to those with STE demonstrated that LBBB-activations were older (mean age 70.7±12.2 vs 64.6±13.4 yrs; p<0.001) and less likely to be male (66.7% vs 76.8%; p=0.004). Other baseline demographics were similar. 21 (17.5%) patients presenting with LBBB-activation had an acute thrombotic coronary occlusion confirmed at angiography and received PPCI. The final adjudicated diagnoses for LBBB-activations were acute coronary syndrome (ACS) (39.2%), non-ACS cardiac (33.3%) and non-cardiac (27.5%). One-year mortality and MACE were higher for appropriate LBBB-activations than the STEMI activations (31.3% vs 7.2%, p=0.002 and 40.0% vs 11.9%, p=0.007 respectively).
Conclusions: Less than half of LBBB-activations had an ACS and, of these, only half had a thrombotic coronary occlusion requiring PPCI. However, LBBB-activations have a significantly worse prognosis and merit urgent referral. Enhanced triage methods are required to correctly identify acute MI requiring PPCI in those with LBBB.

TCT-508

Optimal Medical Treatment in Patients with Hypertension Undergoing Primary Percutaneous Coronary Intervention for Acute Myocardial Infarction

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Background: There is a paucity of evidence on the optimal medical therapy in patients with hypertension and acute myocardial infarction (MI) particularly on the role of calcium channel blockers (CCB).
Methods: A total of 5,076 hemodynamically stable patients who underwent primary PCI for ST-elevation MI within 12 hours after symptom onset were dichotomized according to the presence of antecedent hypertension. Benefit of angiotensin-converting enzyme inhibitors (ACEI) or angiotensin-receptor blockers (ARB), beta blockers, CCB, and diuretics administered during hospitalization was compared between the 2 groups during 12-month follow-up.
Results: Patients with hypertension (n = 2,229, 43.9%) had higher in-hospital mortality (2.2% vs. 1.1%, p = 0.02), but adjusted 12-month rates of death and death/MI were not statistically different between the groups. ACEI/ARB reduced 12-month mortality both in patients with hypertension (hazard ratio [HR] 0.34, 95% confidence interval [CI] 0.22-0.53, p < 0.001) and in patients without hypertension (HR 0.39, 95% CI 0.24-0.64, p < 0.001). Beta blocker therapy significantly reduced 12-month mortality in patients with hypertension (HR 0.55, 95% CI 0.34-0.90, p = 0.02). In contrast, use of CCB and diuretics was associated with increased 12-month mortality in patients with hypertension (HR 2.09, 95% CI 1.19-3.66, p = 0.01 and HR 2.03, 95% CI 1.31-3.16, p = 0.002, respectively).
Conclusions: In patients with hypertension undergoing primary PCI for ST-elevation MI, in-hospital mortality was higher and use of CCB and diuretics was associated with increased 12-month mortality, compared to patients without hypertension.

TCT-509

Low Overall Rates of Angiographically Visible Distal Embolization in INFUSE-AMI: Possible Explanation for Lack of Efficacy of Manual Aspiration Thrombectomy

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Background: Distal embolization (DE) is a major contributor to no-reflow and greater myocardial necrosis in STEMI. Manual Aspiration Thrombectomy (MAT) may reduce intra-procedural thrombotic complications, DE and improve procedural and clinical outcomes. Whether these findings are applicable to contemporary interventional practice is unknown.
Methods: The INFUSE-AMI trial randomized 452 pts with anterior STEMI due to prox or mid LAD occlusion, treated with bivalirudin, to intracoronary bolus abciximab delivered locally via the ClearWay RX catheter vs. no abciximab, and to MAT with the Export catheter vs. no MAT. The primary endpoint was core laboratory assessed MRI infarct size (IS, % of LV mass) at 30 days. Presence of thrombus and DE were assessed at an independent angiographic core laboratory.
Results: Median age was 61y, 74% were men and 11% had diabetes. Intracoronary abciximab reduced median IS: 15.1 [6.8-22.7] vs. 17.9 [10.3-25.4], P=0.03, whereas MAT did not. Thrombus was present at baseline in 85.8% and 87.0% of the MAT and no MAT groups, respectively (P=0.7), and thrombus area was 19.45 ± 11.04 and 20.27 ± 11.89 mm2 (P=0.55). Balloon pre-dilatation was performed in 47.5% of MAT and 66.7% of no MAT (P<0.0001). Immediately pre-stenting, thrombus was present in 48.8% and 66.9% of MAT and no MAT (P=0.0004). Similarly, thrombus area was reduced with MAT vs. no MAT (11.68 ± 8.17 vs 15.43 ± 9.73 mm2), P=0.008. DE was seen in 1.7% (4/232) and 3.6% (8/223) of MAT and no MAT (P=0.22). There were no significant differences between MAT and no MAT with regard to TIMI flow grades or myocardial blush grades at baseline or post stenting. These parameters, however, were worse in no MAT immediately before stenting: TIMI 0/1 13.6% vs. 38.7%; MBG 0/1 22.6% vs. 48.0%, for MAT and no MAT (P<0.0001 for both).
Conclusions: In the INFUSE-AMI trial, the incidence of DE in pts undergoing stenting for STEMI was low and not influenced by use of MAT. MAT resulted in smaller thrombus burden and better intra-procedural myocardial perfusion pre-stenting compared to no MAT, but this advantage was lost after stenting. These findings offer mechanistic insights into why MAT failed to reduce infarct size in the INFUSE-AMI trial.

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